

# NGDA Dataset Report

**Official NGDA Title:** National Flood Hazard Layer (NFHL)

**Metadata Record Title:** National Flood Hazard Layer (NFHL)

**A-16 NGDA Theme:** Elevation

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## Metadata:

**Registration Status:** Complete

**Registered on** 4/21/2015

**GeoPlatform Link\*:** <https://www.geoplatform.gov/node/243/8bdf126d-7e24-45d2-8e3f-6b3631fbdfae>

**Data.gov Metadata Link\*:** <http://catalog.data.gov/harvest/object/a66077f4-4490-47a2-8dcf-ad30cfb605bc/html>

\*If the metadata has been updated and reharvested after publication of this report, the link may no longer be valid. The dataset may be searched for manually in Data.gov or GeoPlatform.gov.

# NGDA Lifecycle Maturity Assessment (LMA) Report

## Time Frame:

Baseline Assessment includes Risk MAP (Post Map Modernization) timeframe of 2009-present.

## LMA Submission:

**Status:** Complete

**Date:** 10/30/2015

**Extension Requested:** Yes

## LMA Reviewer(s):

**Supervisor:** Did not review

**Theme Lead:** Did not review

**Executive Champion:** Did not review

**SAOGI\*:** Did not review

**Other:** Paul Rooney

## LMA Verifier:

**Name:** Paul Rooney

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## Attachments:

To get access to any attachments referenced in the report, email the LMA Help Desk at [NGDA\\_LMA\\_help@fgdc.gov](mailto:NGDA_LMA_help@fgdc.gov). Please use the subject "Dataset Report Attachment(s)" and indicate the associated official NGDA title.

\*Senior Agency Official for Geospatial Information (SAOGI)

## Lifecycle Maturity Assessment (LMA) Summary

### Overall Maturity:

**Mature; Consistent**

General Questions: 75%

**Mature; Consistent**

Stage 1 - Define/Plan: 81%

**Mature; Consistent**

Stage 2 - Inventory/Evaluate: 100%

**Optimized; Established**

Stage 3 - Obtain: 87%

**Mature; Consistent**

Stage 4 - Access: 100%

**Optimized; Established**

Stage 5 - Maintain: 100%

**Optimized; Established**

Stage 6 - Use/Evaluate: 89%

**Mature; Consistent**

Stage 7 - Archive: 66%

**Managed; Predictable**

### NGDA Dataset Maturity Definitions:

How To Calculate Maturity: [https://www.geoplatform.gov/sites/default/files/How\\_to\\_Calculate\\_Maturity.pdf](https://www.geoplatform.gov/sites/default/files/How_to_Calculate_Maturity.pdf)

Maturity	Maturity Characteristics for All Lifecycle Stages
Optimized; Established Rank = 5	Dataset meets virtually all business needs of all users. The dataset is considered authoritative by owners and secondary users. It is curated across all stages of the approved lifecycle. Future needs are defined on a regular basis and resources for addressing both current and future business requirements are available.
Mature; Consistent Rank = 4	Dataset meets all the business needs of the primary owner and most of the secondary users. The dataset is curated and used as authoritative by the primary owner. Dataset is used widely by secondary users actively engaged in sustaining the dataset. Future needs are identified and steps are planned to address these. All stages are supported and reviewed on a recurring basis. The dataset is well managed in relation to the approved lifecycle.
Managed; Predictable Rank = 3	Dataset meets a significant number of the business needs of the primary owner and is widely used as an authoritative resource by secondary users. Benchmark activities are occurring in at least four of the approved lifecycle stages. Management practices in relation to the approved lifecycle is moderate but consistent. Dataset is integrating changing business requirements in lifecycle stages impacting overall maturity.
Transition; Transformation Rank = 2	Dataset meets business needs of the primary owner and has moderate use by secondary users. Benchmark activities are occurring in at least three stages. Efforts to integrate funding, include partners, and obtain data are not supported in a sustained manner. Management practices in relation to the stages of the approved lifecycle is limited.
Planned; Initial Development Rank = 1	Dataset limited in meeting business needs of the primary owner. Benchmark activities in the approved lifecycle are just starting to consider secondary uses, partnerships are forming to support additional dataset uses. Dataset development is in a very early stage. Minimal or limited management against the benchmarks in the approved lifecycle.
No Activity Rank = no activity	Dataset meets project or local business needs of the primary owner, secondary or additional uses or users were not considered, not recognized as an authoritative data or is part of a similar dataset. Not managed to any of the benchmarks in the approved lifecycle.

## General Questions for All Stages

1) Is there a recurring process to obtain funding for all lifecycle stages of this dataset?

**Answer:** Funding support is part of agency budget on a recurring basis, funding is consistent and tied to business processes, and supports all lifecycle stages.

**Justification Comment:**

**Attachment(s):** 4

Funding for flood mapping is by annual appropriation supplemented by NFIP fees. See attached budgeting documents.

2) Is there a process in place to ensure that open government and transparency guidelines are followed in all lifecycle stages for this dataset?

**Answer:** Process under development.

**Justification Comment:**

**Attachment(s):** 1

OpenFEMA has procedures to make sure that FEMA datasets meet open government guidelines. The NFHL dataset is one of the datasets evaluated by the OpenFEMA team. See attached.

The NFHL is published for free online in a variety of open formats.

The NFHL is registered with Data.gov and OpenFEMA and has published CSDGM Metadata published.

3) Are there processes and tools in place so that staff are sufficiently knowledgeable to ensure a continuity of the dataset for all stages of the lifecycle, especially during staffing transitions?

**Answer:** Processes and tools to ensure dataset continuity are in place and implemented for all lifecycle stages.

**Justification Comment:**

**Attachment(s):** 0

Staff don't maintain the dataset, contractors do. Staff are responsible for working with contractors to maintain the standards and documentation, which is covered in a separate number.

Building and maintaining the NFHL is a core business process for the Risk MAP program.

We have extensive documentation on the guidance and standards for developing flood products. We also have frequent trainings.

The primary resource for employee education within the program is Risk MAP University. This is broken into the College of Professional Development and the College of Delivery. Training on flood mapping standards and procedures is found in the College of Delivery.

I would attach more info but the PPT is too big and RTF isn't accepted.

## STAGE 1 - Define/Plan

4) Are user and business requirements defined and formalized?

**Answer:** A recurring process is in place, including defining new partner and stakeholder business needs as they arise, and is fully implemented.

**Justification Comment:**

**Attachment(s):** 1

Business requirements are determined by the purpose, uses, and activities of the National Flood Insurance Program, as defined by statute and regulation. The program has two main purposes: making flood insurance available to those living in participating communities, and characterizing the floodplain management practices required for communities to participate. Flood Insurance Rate Maps

and data are used for both purposes. The following terms and authorities help to demonstrate the business requirements of the maps and data as they relate to this program.

For more information, see attached.

**5)** How are partners/stakeholders involved in the requirements collection process?

**Answer:** Ad hoc process is used for involving Partners/stakeholders in identifying requirements.

**Justification Comment:**

**Attachment(s):** 0

There are ad hoc processes in place that capture user needs:

- 1) Help desk tickets
- 2) Quality reviews and checks
- 3) Conference presentations
- 4) Stakeholder meetings (major stakeholders meet with FEMA quarterly)
- 5) Community meetings as part of the Risk MAP lifecycle
- 6) A Comprehensive Needs Management System to log and track data needs
- 7) Technical Mapping Advisory Committee (FACA)
- 8) Reports to Congress

See <http://www.fema.gov/risk-map-flood-risk-project-lifecycle> for more on the Risk MAP lifecycle.

**6)** Is there a quality assurance process for the dataset?

**Answer:** Process established, significant portions of the documentation is complete.

**Justification Comment:**

**Attachment(s):** 1

Answer:

Quality assurance of the NFHL is achieved by using a number of methods to ensure that data is developed and incorporated on a consistent basis.

These methods include:

Risk MAP Program and Working Standards

Program Standards are required elements of the Risk MAP program. There are no exceptions to these requirements, unless granted by program leadership. Working Standards are required elements usually at a lower level of granularity than the program standards. Working standards are applied by specialists (engineers, planners, technicians, scientists, etc.) and have minimal ethical, political, and legal impacts to the program. There may be occasional exceptions to these requirements, which may be granted by FEMA Regional offices.

See attached, as well as the Quality Management Plan:

[http://www.fema.gov/media-library-data/1406747117315-744b6bd203c18ada4806ad4e90c18b81/Quality\\_Management\\_Guidance\\_May\\_2014.pdf](http://www.fema.gov/media-library-data/1406747117315-744b6bd203c18ada4806ad4e90c18b81/Quality_Management_Guidance_May_2014.pdf)

**7)** Is there a process to evaluate the sensitivity, privacy, and confidentiality of this dataset?

**Answer:** Sensitivity, privacy, and confidentiality evaluations fully implemented, reviewed and updated on a recurring basis.

**Justification Comment:**

**Attachment(s):** 0

There are no PII concerns with respect to the Flood Hazard Data.

**8)** Are defined data standards used in collecting, processing, and/or rendering the data?

**Answer:** Standards fully implemented documented and published as appropriate.

**Justification Comment:**

**Attachment(s):** 0

We have extensive standards, technical references, guidance for the standards and processes, and capture best practices. We have a well defined process for managing and updating the standards (quarterly), and distributing them to the public.

<https://www.fema.gov/guidelines-and-standards-flood-risk-analysis-and-mapping>

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## STAGE 2 - Inventory/Evaluate

**9)** Is there a process for determining if data necessary to meet requirements already exist from other sources (either within or outside the agency) before collecting or acquiring new data?

**Answer:** Process for determining appropriate data is being reused fully implemented, reviewed, and updated on a regular basis.

**Justification Comment:**

**Attachment(s):** 0

Each flood study requires a number of source data sets to complete, including elevation data, hydrology, stream networks, base data, etc. We put a high priority on using existing data and have incorporated this into our guidance and standards, as well as working with other federal agencies through NDEP, NDOP, etc. For the most part, the only data we create are the final products derived from engineering studies that utilize existing data. For the most expensive data (elevation), we partner through 3DEP.

See here:

[https://hazards.fema.gov/femaportal/docs/GeoDataImplem\\_V3.pdf](https://hazards.fema.gov/femaportal/docs/GeoDataImplem_V3.pdf)

and the geospatial coordination resources we provide on this page:

[https://hazards.fema.gov/femaportal/wps/portal/!ut/p/a1/04\\_Sj9CPykssy0xPLMnMz0vMAfGjzOINLlx8zcwDgt2dDNw9fHy9DT0NDSAAqCAspAAHcDQgpD9cPwpFibOFgbORu4GTqTHMDJgC3FYU5EYYZDoqKglAZGDG\\_g!!/dl5/d5/L2dJQSEvUUt3QS80SmIFL1o2XzA4Mk02N1BTR0lwR0hMTUtURTEwMDAwMDAw/](https://hazards.fema.gov/femaportal/wps/portal/!ut/p/a1/04_Sj9CPykssy0xPLMnMz0vMAfGjzOINLlx8zcwDgt2dDNw9fHy9DT0NDSAAqCAspAAHcDQgpD9cPwpFibOFgbORu4GTqTHMDJgC3FYU5EYYZDoqKglAZGDG_g!!/dl5/d5/L2dJQSEvUUt3QS80SmIFL1o2XzA4Mk02N1BTR0lwR0hMTUtURTEwMDAwMDAw/)

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## STAGE 3 - Obtain

**10)** Is there a process for obtaining data in relation to this dataset?

**Answer:** Process is fully implemented, reviewed and updated on a regular basis.

**Justification Comment:**

**Attachment(s):** 0

There is a significant amount of process recommended in the guidance that accompanies our standards. There are process documents within the contractors as well, but we do not prescribe process beyond standards and guidance.

See here:

[https://hazards.fema.gov/femaportal/docs/GeoDataImplem\\_V3.pdf](https://hazards.fema.gov/femaportal/docs/GeoDataImplem_V3.pdf)

and the geospatial coordination resources we provide on this page:

[https://hazards.fema.gov/femaportal/wps/portal/!ut/p/a1/04\\_Sj9CPykssy0xPLMnMz0vMAfGjzOINLlx8zcwDgt2dDNw9fHy9DT0NDSAAqCAspAAHcDQgpD9cPwpFibOFgbORu4GTqTHMDJgC3FYU5EYYZDoqKglAZGDG\\_g!!/dl5/d5/L2dJQSEvUUt3QS80SmIFL1o2XzA4Mk02N1BTR0lwR0hMTUtURTEwMDAwMDAw/](https://hazards.fema.gov/femaportal/wps/portal/!ut/p/a1/04_Sj9CPykssy0xPLMnMz0vMAfGjzOINLlx8zcwDgt2dDNw9fHy9DT0NDSAAqCAspAAHcDQgpD9cPwpFibOFgbORu4GTqTHMDJgC3FYU5EYYZDoqKglAZGDG_g!!/dl5/d5/L2dJQSEvUUt3QS80SmIFL1o2XzA4Mk02N1BTR0lwR0hMTUtURTEwMDAwMDAw/)

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**11)** Is the metadata in a FGDC endorsed geospatial metadata standard?

**Answer:** Metadata is available in a format endorsed by the FGDC, it fully describes the dataset and

provides all the information required to make the dataset discoverable, accessible, and usable.

**Justification Comment:**

**Attachment(s):** 0

Yes. We have metadata in CSDGM 2.0 for a number of our data elements we make available, and require their delivery through standards and technical reference. Included are:

National Flood Hazard Layer

FIRM Database

All of the component datasets that go into the creating of the FIRM Database has metadata profiles and xml templates.

[http://www.fema.gov/media-library-data/1420663071512-85d1835536cff5d9c82713e5e0978d8c/Metadata\\_Profiles\\_Technical\\_Reference\\_Nov\\_2014.pdf](http://www.fema.gov/media-library-data/1420663071512-85d1835536cff5d9c82713e5e0978d8c/Metadata_Profiles_Technical_Reference_Nov_2014.pdf)

**12)** How complete is the geographic coverage as defined in the requirements for the dataset?

**Part 1 Answer:** Business requirements for cyclic updates identified and a process is in place.

**Part 2 Answer:** Data set is roughly 50% of the geographic coverage is presently complete per current requirement.

**Justification Comment:**

**Attachment(s):** 0

Risk Map as a program has a number of metrics over the long term. Geographic coverage metrics that relate to geospatial data products are stream miles and coastal miles. Where these miles are located is not tracked as a metric. Specific areas to be mapped are determined by annual budget and distribution to our regions, and based on business requirements. Progress is tracked per project, but metrics are tracked by miles. See here for current Risk MAP progress reports:

<http://riskmapprogress.msc.fema.gov/>

## STAGE 4 - Access

**13)** Do you have a process for providing users access to the data in an open digital machine readable format?

**Answer:** User access process is fully implemented, data is available, process is reviewed and updated on a recurring basis.

**Justification Comment:**

**Attachment(s):** 0

Yes, where maps have been modernized. A number of open geospatial services are made available for the NFHL. See:

<https://catalog.data.gov/dataset/national-flood-hazard-layer-nfhl> and more specifically, <https://hazards.fema.gov/femaportal/wps/portal/NFHLWMS>

## STAGE 5 - Maintain

**14)** Is there a maintenance process for updating and storing the dataset?

**Answer:** Dataset maintenance process is fully implemented and processes are reviewed and periodically updated.

**Justification Comment:**

**Attachment(s):** 0

Data maintenance is managed by our Customer and Data Services Contractor through most of the lifecycle of study development. Dataset is maintained per some of the standards (e.g. currency and revalidation), with IT requirements (backup, security, hw/software) met through service level agreements and defined in our contract where necessary.

**15)** Is there an error correction process as part of dataset maintenance?

**Answer:** Error correction process includes user notification, process reviewed on a recurring basis.



**Justification Comment:****Attachment(s):** 0

Errors captured from external sources are handled through our CDS helpdesk (FMIX) and tracked by ticket. Often these errors require due process to be fixed (community notification, appeal period, re-mapping, etc.) so many cannot be fixed quickly. Others are. There is also an internal process for finding errors and categorizing them, and a current budget and effort to fix them.

Some errors are noticed through ad hoc visual inspection and passes along. Many have been found through data and geospatial check logic. Note this is different from the quality control tools that are used before products are final.

In addition to errors identified by FEMA, there are also regulatory requirements for processing end user requests updates to flood maps including the NFHL. FEMA has implemented processes for Letters of Map Revision (44 CFR 65.5) and Letters of Map Amendment (44 CFR 70) and process thousands of updates to the maps through these processes. Some of these are map updates, others are correcting issues with the maps.

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**STAGE 6 - Use/Evaluate**

**16)** Is there a process to determine if the dataset meets user needs?

**Answer:** Process is complete and being implemented on ad hoc basis.

**Justification Comment:****Attachment(s):** 0

There are ad hoc processes in place that capture user needs:

- 1) Help desk tickets
- 2) Quality reviews and checks
- 3) Conference presentations
- 4) Stakeholder meetings (major stakeholders meet with FEMA quarterly)
- 5) Community meetings
- 6) A Comprehensive Needs Management System to log and track data needs
- 7) Technical Mapping Advisory Committee (FACA)
- 8) Reports to Congress

TMAC:

<https://www.fema.gov/technical-mapping-advisory-council>

[http://www.fema.gov/media-library-data/20130726-1833-25045-1376/fy12\\_rm\\_report.pdf](http://www.fema.gov/media-library-data/20130726-1833-25045-1376/fy12_rm_report.pdf)

<http://www.fema.gov/risk-map-flood-risk-project-lifecycle>

Help Desk:

<http://msc.fema.gov/portal/resources/contact>

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**17)** Is there a process to provide users information on how to access and properly use the dataset?

**Answer:** Process is fully implemented supporting access and proper use, process is reviewed on a recurring basis.

**Justification Comment:****Attachment(s):** 0

There are extensive resources available on how to find and use the data, as well as trainings and videos. The two primary initial sources of information are the data.gov site:

<https://catalog.data.gov/dataset/national-flood-hazard-layer-nfhl>

and the FEMA Map Service Center Site:

<http://msc.fema.gov/portal>



**18)** Are the business processes and management practices assessed to meet changing technology?

**Answer:** Assessment process is fully implemented for taking advantage of changing technology, process is reviewed on a recurring basis.

**Justification Comment:**

**Attachment(s):** 0

Our CDS Contractor is required to give us annual recommendations on technology refresh, some of which we explore further and fund based on resources.

A digital regulatory products team meets weekly to discuss incremental changes.

The 5 year contract cycle typically brings about major technology advances in the form of the selected contractors solution. New, efficient, creative, more effective technologies are an objective in our Statement of Objectives that goes out as part of the RFP package.

<https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=7cd9dbafea389b9b9aaac1371e9a1992>

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## STAGE 7 - Archive

**19)** Is there an archiving process for the dataset?

**Answer:** Archival and/or processes are in early implementation.

**Justification Comment:**

**Attachment(s):** 0

To date, we have struggled with NARA to archive our digital products. Currently the process is old and involves sending them our paper maps. Recently there has been some movement on this, though; we have been assured by NARA that we'll have significant progress on a digital archiving plan within a month.

Internally, we must maintain historic maps as scans. We do not have a requirement to maintain historic data of the NFHL. Because it is so large, includes 30 layers, is seamless nationally and changes daily through different revision processes, versioning is beyond our current capabilities, though we've discussed it. We do store the FIRM Databases, as they were delivered, on the Mapping Information Platform. We have recently begun storing Letter of Map Revision data there as well. But in general, the archival method is paper and bitmap images.